Neuropathology Department - User Manual

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Author	C Rowe	**Authorised by**	H Williams

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2	07/01/2008	Revision of muscle biopsy section
3	28/01/2008	Emergency call out; specimen packing; change to tel. numbers
4	01/04/2011	Addition of: turn-around times; referral departments
5.	30/08/2014	Reviewed following move into Lime Walk Building
6.	09/02/2015	Revised to ISO:15189

Circulation List

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Table of Contents

Document History 1
Circulation List 1
Table of Contents 2

1. Introduction 3

1.1. Contact Information 3
1.2. Hours of Business: 4
1.3. Location of the Neuropathology Department 4
1.4. Specimen Labelling and Request Forms 4
1.5. Criteria for Rejection of Samples 5
1.6. Safety Information 6
1.7. Issuing of Diagnostic Reports 6
1.8. Referral of Cases to Another Department 7

2. Packaging and Transport of Specimens 7

3. Urgent Intra-Operative Specimens 8

3.1. Tissue Smears 8
3.2. Biopsies for Urgent Frozen Sections 9

4. Neurosurgical Biopsies for Histology 10

5. Biopsies for Electron Microscopy 11

6. Cerebrospinal Fluid (CSF) for Cytological Examination. 12

7. Muscle Biopsies 13

7.1. Arranging for a Muscle Biopsy Procedure to be Performed by the Neuropathology Department 13
7.2. General Guidelines for Sending a Muscle Biopsy Specimen to the Neuropathology Department 13

8. Peripheral Nerve Biopsies 15

8.1. Arranging for a Nerve Biopsy Procedure to be Performed by the Neuropathology Department 15
8.2. General Guidelines for Sending a Nerve Biopsy Specimen to the Neuropathology Department 15
8.3. Nerve Biopsy Procedures Performed by Other Departments at Southmead Hospital 16
8.4. Nerve Biopsy Procedures Performed at Other Hospitals 17

9. Autopsy Specimens 18

10. Complaints Procedure 19

11. Data Protection 20

1. Introduction

The Neuropathology Department at North Bristol NHS Trust is managed through the Trust's Neurosciences Directorate, and provides a diagnostic pathology service offering the following range of investigations:

- a neurosurgical biopsy service, to include urgent intra-operative reporting
- cytological examination of cerebrospinal fluid specimens
- a muscle and peripheral nerve biopsy service (specimens can be sent to the department from other hospitals, or alternatively, patients can be referred to us for the biopsy procedure to be performed by one of our own neuropathologists)
- macroscopic and microscopic examination of fixed brains, spinal columns and spinal cords, as well as a general autopsy histology service for cases both undergoing post-mortem examination within North Bristol NHS Trust, and for specimens referred to us from other Trusts
- electron microscopy examination is also performed when appropriate, and this facility is available for both in-house and referred specimens

1.1. Contact Information

Our Southmead Address:

Department of Neuropathology
North Bristol NHS Trust
Lime Walk Building

Southmead Hospital,
Southmead Way,
Bristol,
BS10 5NB

Telephone:

All the department's telephone extensions can be direct dialled, using - (0117) 414#### (where ##### is the 4-digit extension number).

Extension numbers are:

Prof. S. Love (Consultant Neuropathologist / Laboratory Director)	2404
Dr. K. Kurian(Consultant Neuropathologist)	2405
Dr. N Cohen (Consultant Neuropathologist)	2406
Specialty Registrar	2407
Mrs C Rowe (Laboratory Manager)	2401
Main Laboratory	2400
Secretarial Staff	2402 & 2403
Laboratory Mobile	07591644638

Our Frenchay Address:

Department of Neuropathology
North Bristol NHS Trust
Frenchay Hospital,
Frenchay Park Road,
Bristol
BS16 1LE

Tel. 01173406569

1.2. Hours of Business:

The department is staffed between 8:15 am and 5:15 pm, Monday to Friday, excluding bank holidays.

A call out service is available for out-of-hours emergencies and advice; please call switchboard on (0117) 970 1212 and they will contact a neuropathologist.

1.3. Location of the Neuropathology Department

The Lime Walk Building is located within the 'Limes Quarter' of Southmead Hospital.

- Enter the hospital site from Southmead Road
- Follow the road around onto Southmead Way
- Turn left at mini roundabout onto Beaufort Way
- Take first left-hand turning into what looks like a car park – pull in somewhere here (usually one or two spaces to park)
- Follow the walk way passing a bike cage – you will see blue doors – this is the entrance to Specimen Reception.
- If the reception is manned the doors will be unlocked. At the reception, either phone or ask the receptionist to call the Neuropathology Department and someone will come and collect you shortly. The department's telephone number is displayed in the reception.
- If the reception is unmanned the door will be locked. Please ring 0117 4142400 or 07591644638 and someone from the department will come and meet you. The department's telephone number is displayed on the front door.
- Please ensure that an urgent specimen is never left in the reception without the Neuropathology Department being notified.

1.4. Specimen Labelling and Request Forms

Note that the information provided below conforms to North Bristol NHS Trust's *Policy for request form and specimen labelling* (Ref CG45). This is posted on the Trust's IntraNet resource.

Please label all **surgical specimen containers** with the following information:

- The patient's surname & forename;
- His/her hospital and NHS number, and his/her date of birth.

- And when appropriate, if the specimen is a potential inoculation risk(refer to section 1.6)

All surgical specimens must be accompanied by a request form, preferably a green Neuropathology form. These forms are available from this Department's Office. We will accept specimens accompanied by other request forms, but note that using a non-Neuropathology form can result in a delay in the specimens reaching us due to it being inappropriately delivered to the General Pathology Department, which is located in a different area. If you have not used a green request form, please label the specimen bag very clearly 'FOR NEUROPATHOLOGY'.

This **request form** must record the information required for the specimen container (see above), plus:

- Gender of patient
- Clinical details
- The site of the biopsy and specimen details
- The name of the consultant, and the source of the request
- The date and time of specimen collection
- And when appropriate, should be labelled clearly as a potential inoculation risk (see section 1.6)

All **autopsy specimens** sent to the Neuropathology Department at Southmead Hospital must be clearly labelled with the name of the deceased and accompanied by a copy of the autopsy report.

Written evidence from the next-of-kin must also be provided for:

- The consent of the autopsy examination
- The information concerning the ultimate fate of residual tissue, associated blocks and slides
- Any constraints on sampling

Failure to supply this information may result in the specimen being returned unexamined.

The collation of this information is performed by a department secretary, who will also coordinate requests for the urgent return of specimens.

1.5. Criteria for Rejection of Samples

The samples received by the Neuropathology Department are regarded as non-repeatable samples. When the department receives incorrectly labelled samples:

- the requestor will be informed and clearly advised that the final results of this sample will be withheld until such time that the sample is adequately labelled
- the requestor must, where practicable arrange for the sample to be correctly re-labelled as soon as possible so that the sample can be processed
- all incidents of non-conformity with the policy, identified by staff in Neuropathology, will be documented using departmental systems and escalated on the North Bristol Trust e-AIMS system for incident reporting.

1.6. Safety Information

Formalin and **glutaraldehyde** fixatives used for Neuropathology specimens are toxic by inhalation and ingestion, and can cause severe dermatitis on skin contact.

95% Alcohol used for fixing brain smears is harmful by ingestion, flammable and volatile.

Please wear nitrile gloves when handling containers of these fixatives, and ensure there is adequate ventilation. Specimen container(s) should be sealed in a plastic bag as soon as the labelled specimen(s) have been placed in them. Store the request form in the separate pocket on the specimen bag to ensure that it does not become contaminated.

Hazard data sheets for these substances are available on request from the Neuropathology Department.

Any patient with or suspected of any of the following are considered to be an Inoculation Risk:

- HIV
- Hepatitis B
- Hepatitis C
- Creutzfeld Jakob
- Tuberculosis

For the safety of staff, please ensure that these investigations are kept to a minimum.

Forms and specimen pots must be clearly labelled as a "**Biohazard Risk**" or "**Inoculation Risk**".

1.7. Issuing of Diagnostic Reports

Once the reports have been authorised they are securely emailed to the requesting clinician. The signed reports are then sent to the clinician via internal mail.

Requests for reports should be directed through the department secretaries. Verbal reports, either in person or by telephone, should only be provided by a member of the Neuropathology Department's medical staff.

We aim to provide a histology report for at least 80% of cases within the target times indicated below for the various categories of specimens examined in this department.

- Neurosurgical biopsies 8 days
- Muscle & peripheral nerve biopsies 11 days
- Autopsy histology 65 days
- Cerebrospinal fluid analysis 7 days

Note that if additional work is required on a case (e.g. further immuno-cytochemistry or electron microscopy), a later supplementary report will be issued.

1.8. Referral of Cases to Another Department

In circumstances where a further diagnostic opinion is required for a case, material will be referred to another pathologist who is considered to have a high degree of specialist knowledge in that particular field, either within North Bristol NHS Trust, or elsewhere. The following departments are frequently used as referral centres:

- Department of Cellular Pathology
  Southmead Hospital
  Westbury-On-Trym
  Bristol BS10 5NB
- Department of Histopathology
  Bristol Royal Infirmary
  Upper Maudlin Street
  Bristol BS2 8HW
- Institute of Neurology
  Muscle Pathology Laboratory
  1st Floor, Queen Square House
  Queens Square
  London WC1N 3BG
- Department of Neurology
  Mitochondrial Diagnostic Service
  4th Floor, Cookson Building
  The Medical School
  Framlington Place
  University of Newcastle-Upon-Tyne NE2 4HH
- Department of Neuropathology
  St Jude Childrens Research Hospital
  332 N.Lauderdale Street
  Memphis TN38105
  USA

All referral centres are checked to ensure they are accredited with the appropriate accreditation body.

2. Packaging and Transport of Specimens

All specimens sent to the Neuropathology Department at Southmead Hospital must be packed and labelled in compliance with the current Health and Safety and Transport legislation.

Note that the request form must be stored in a separate pocket to the specimen. This will ensure that it does not become contaminated.

All specimens delivered to North Bristol Trust from external users must be packaged in accordance with **UN 3373** guidance.

There must be the primary receptacle, secondary packaging and a **UN 3373** certified outer packaging. There must be adequate cushioning and if required absorbent material between the secondary and outer packaging. All outer packaging must be labelled as **UN 3373** and also clearly marked as **Pathological Specimens**.

3. Urgent Intra-Operative Specimens

3.1. Tissue Smears

A smear preparation is the preferred type of specimen for urgent intra-operative diagnosis.

If the tissue sample will not smear readily, frozen sections will need to be prepared (refer to **section 3.2** below).

Urgent intra-operative biopsies may be sent in a universal container for smears or frozen sections to be prepared by the Neuropathology Department. The container should be labelled as described in **section 1.4** above.

Prior Notification	Please inform us before sending the smear if possible. This will reduce the possibility of a delay in the provision of the result by a consultant neuropathologist. Consultant neurosurgeons should book out of-hours requests as far in advance as possible by arrangement with a consultant neuropathologist, who should be contacted by telephone.
Container	If smears are prepared by the Neuropathology Department: Fresh tissue should be sent in an universal container. If smears are prepared in theatres: A plastic (polypropylene) screw-top container, specifically designated for smears should be used. The container should be filled with 95% ethanol (available from the Neuropathology Laboratory) and must be clearly labelled. Place it in a self-seal specimen bag and transport upright. In both instances the container should be clearly labelled as described in **section 1.4** above
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the specimen bag.
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. **Never leave an urgent intra-operative sample in the Specimen Reception without speaking to a member of the Neuropathology team**. The sample is urgent so it is imperative that it is dealt with in the quickest possible manner.

3.2. Biopsies for Urgent Frozen Sections

Some intra-operative specimens, particularly those of a hard or rubbery consistency, will not smear. Should this be the case, cryostat sectioning of frozen tissue is necessary to prepare a specimen for an urgent diagnosis.

A tissue sample at least 3mm across should be selected for this type of preparation.

Prior Notification	Inform a consultant neuropathologist before sending the specimen, if possible. Consultant neurosurgeons should book out of-hours requests as far in advance as possible by arrangement with a consultant neuropathologist, who should be contacted by telephone. A biomedical scientist will need to be called in to prepare the specimen for microscopy.
Container	A specimen jar of appropriate size. If the specimen is small, sufficient saline should be added to keep it moist. No fixative should be used. The specimen jar must be labelled and placed in a sealable specimen bag.
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the specimen bag.
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. **Never leave an urgent intra-operative sample in the Specimen Reception without speaking to a member of the Neuropathology team**. The sample is urgent so it is imperative that it is dealt with in the quickest possible manner.

4. Neurosurgical Biopsies for Histology

The routine neurohistology specimens generated during surgery at Southmead Hospital are normally collected in the theatre suite for delivery to the Neuropathology Department by the theatre porter.

Special arrangements should be made for specimens from other departments to be delivered to the Neuropathology Department.

Prior Notification	Not usually required.
Container	Specimen jar of appropriate size (at least twice the specimen volume) containing formalin fixative. If a large container is required, this can be provided by the Neuropathology Department. If molecular genetic analysis may be required, an additional specimen sample should be put in a screw-top plastic NUNC tube. No fixative solution should be added, as the sample will be frozen on receipt in the laboratory, and then stored at -80°C pending further laboratory investigations. The container(s) must be clearly labelled, as outlined in **'section 1.4'**, and placed in a sealable specimen bag.
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the sealable specimen bag.
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. Neuropathology has a sample box located on the far right side of the counter in the Specimen Reception. This box is routinely checked throughout Neuropathology's hours of business so biopsy samples (**in fixative**) can be left in here.

5. Biopsies for Electron Microscopy

We accept a range of tissue samples from both within North Bristol Trust and from other establishments for ultrastuctural examination for a variety of neurological conditions, for example, skin biopsies for CADASIL and Batten's disease.

For this technique to provide reliable results the tissue must be immersed in a suitable fixative (see below) as soon after resection as possible, preferably within a couple of minutes. If in doubt regarding the type or availability of a fixative solution, please contact the laboratory *before* taking a tissue sample.

Prior Notification	Is not usually required.
Container	Small snap-top vial containing buffered glutaraldehyde fixative (available on request from the Neuropathology Department). Several small specimens can be added to the vial but none should exceed ~5 mm in maximum diameter. The vial should be clearly labelled with details of the patient, as outlined in **'section 1.4'** and placed in a sealable specimen bag.
Accompanying Information	A request form (preferably a green Neuropathology form), completed as outlined in **'section 1.4'**, providing adequate clinical information including an indication of what pathological condition is suspected. The form should be stored in a separate pocket to the specimen to prevent contamination.
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. Neuropathology has a sample box located on the far right side of the counter in the Specimen Reception. This box is routinely checked throughout Neuropathology's hours of business so specimens (**in fixative**) can be left in here. Alternatively, specimens from other hospitals can be sent to the department by post or courier service provided they are appropriately and securely packed. In this case please notify the laboratory that you are sending the sample. Samples are then sent on to our Frenchay Laboratory when someone is available to accept the sample.

6. Cerebrospinal Fluid (CSF) for Cytological Examination.

Please note that these specimens must be sent or delivered to the **Neuropathology Department**, not to General Pathology, as soon as possible, and always within 72 hours of collection from the patient.

Failure to do this may result in the specimen being left in the wrong department for a significant period of time before Neuropathology staff are notified of its existence. The deterioration of the specimen during this period may affect the quality of the diagnostic result.

CSF specimens may be left in a ward fridge for up to 72 hours if they are collected outside of the Neuropathology Department's opening times. **Storage in a fridge for longer periods or at room temperature for more than a few hours will render the specimen diagnostically useless.**

Prior Notification	Is not usually required.
Container	A universal plastic specimen pot, clearly labelled with the patient's details, as outlined in **'section 1.4'**. Ideally at least 1ml of CSF is required. No fixative should be added to the container. The pot must be placed in a sealable specimen bag.
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the sealable specimen bag.
Point of Delivery	Neuropathology Main Laboratory, preferably no later than 2.00 pm, to allow time for immunocytochemical procedures to be performed on the same day, if required.

7. Muscle Biopsies

7.1. Arranging for a Muscle Biopsy Procedure to be Performed by the Neuropathology Department

Please note that the following information applies to the booking of both muscle and nerve biopsy procedures.

Following a full neurological investigation, if it is considered desirable for your patient to be referred to this department for a biopsy procedure to be performed by one of our neuropathologists, this should be booked with one of the department secretaries. This can be done by telephone, but we will also require either a Neuropathology request form or a referral letter. The document must contain details of the patient's clinical history and recent investigations.

We will liase with the bed manager, the theatre staff and anaesthetists, and book an appointment for the patient to be admitted to Southmead Hospital. It should be noted that there is facility for only a small number of patients to be biopsied in this way each week, and there may sometimes be a waiting time of several weeks for this service.

A member of the Neurosciences Directorate appointments staff will write to your patient, advising him/her of the appointment date. The letter will include a pack of information relating to the biopsy procedure.

7.2. General Guidelines for Sending a Muscle Biopsy Specimen to the Neuropathology Department

Prior Notification:

All muscle biopsy procedures should be pre-booked through the Neuropathology Department Office, preferably providing at least one week's notice.

A4-sized green booking forms are available from the Neuropathology secretaries and should be completed and returned before the procedure is carried out.

The choice of biopsy site, and the size and orientation of specimen, may need prior discussion with a consultant neuropathologist.

If required, arrangements can be made for a biopsy to be performed by one of our neuropathologists at Southmead Hospital (see section 7.1). There is usually a waiting list of several weeks for this service.

Please schedule the procedure early enough in the day to ensure the specimen arrives at the laboratory well before the end of the afternoon, allowing time for the specimen to be sampled and prepared immediately after its arrival. Muscle biopsies can only be sent to the Neuropathology Department outside normal working hours in cases of clinical urgency by arrangement with a neuropathologist.

Early on the day of the procedure contact the laboratory to provide us with an expected delivery time for the specimen. This helps us manage the day's workload.

Also, make arrangements for delivering the specimen to the Neuropathology Department, bearing in mind that the time elapsing between taking the biopsy and

its delivery to the laboratory should be kept to a minimum. If you anticipate a delay in excess of 30 minutes, liase with a consultant neuropathologist or biomedical scientist.

Open Biopsies:

There are specific requirements for taking the tissue sample:

1. Open muscle biopsies may be performed under local or general anaesthesia. However if the biopsy has to be taken under local anaesthesia, please avoid infiltration of the muscle itself by the anaesthetic, which will seriously affect its suitability for assessment of some conditions. It is also important that the muscle fascicles are removed without prior diathermy.
2. We recommend that that at least two strips of muscle of approximately pencil thickness and around 15mm in length are dissected from the surface of the muscle. These need to be in alignment with the natural direction of the muscle fibres.
3. The specimen should not be tethered or pinned in any way.
4. Ensure that there is ***no specimen contact with any fluid***, for example fixative or saline solutions.
5. The specimen(s) should be placed on a non-absorbent support (e.g. a small piece of dental wax or foil)
    a. If the specimen can be delivered to the Neuropathology Department within 20 minutes of resection, place this specimen on its support in a Petri dish for transit to the lab.
    b. Otherwise, to prevent desiccation, the specimen on its support should be gently wrapped in cling-film and placed in an airtight container for transport to the laboratory. ***Ensure that the specimen is not crushed whilst being wrapped***.

Needle Biopsies:

If for clinical reasons a needle biopsy procedure is preferable to performing an open biopsy, bear in mind that the small muscle samples taken are more prone to desiccation. Follow the guidelines in sections (4) and (5) above. Note that ***all needle biopsy specimens should be contained as in section (5b)***.

Accompanying Documentation:

The specimen container must be clearly labelled with the patient's details, and should be accompanied by a specimen request form.

Packaging and Transport:

If the specimen is to be sent to the Neuropathology Department from another hospital site, follow the instructions provided below:

- **Do not pack the specimen container with ice:** if the courier is delayed and the specimen begins to freeze slowly, the examination and diagnosis will be compromised. Also any water formed if the ice begins to melt will damage the specimen if it comes into contact with it.
- All specimens should be placed inside a sealed specimen bag, and appropriate labelling and outer packaging should be used (see section 2 above). Specimens being transported between hospitals must be clearly labelled with a contact telephone number.
- Transport arrangements for delivering the specimen to the Neuropathology Department must be made well in advance, bearing in mind that the time elapsing between taking the biopsy and its delivery to the laboratory should be kept to an absolute minimum.
- **The courier should be on standby to take delivery of the specimen as soon after resection as is practically possible, and should immediately transport it to the Neuropathology Department at Southmead Hospital.** Ensure that the courier is aware of the importance of hand delivering the sample directly to a member of the Neuropathology team and that they should NEVER leave the sample in Specimen Reception without speaking to a member of the Neuropathology team first. There are details on finding the department in section 1 of this User Manual.

Please notify the laboratory once the specimen has been despatched, to provide us with an expected delivery time and a contact telephone number for the courier, in case the specimen does not arrive within the expected time.

8. Peripheral Nerve Biopsies

8.1. Arranging for a Nerve Biopsy Procedure to be Performed by the Neuropathology Department

If required, arrangements can be made for a neuropathologist to perform the nerve biopsy procedure at Southmead Hospital. This service will need to be booked in advance, and there is usually a waiting list of several weeks.

Please refer to **section 7.1** of this manual for information on booking a nerve biopsy procedure.

8.2. General Guidelines for Sending a Nerve Biopsy Specimen to the Neuropathology Department

Prior Notification:

As for muscle biopsies, all peripheral nerve biopsy procedures should be pre-booked through the Neuropathology Department Office, preferably providing at least one week's notice.

A4-sized green booking forms are available from the Neuropathology secretaries and should be completed and returned before the procedure is carried out.

If in doubt about the choice of biopsy site, please discuss the case with a consultant neuropathologist before booking the procedure.

The Biopsy Procedure:

Please note the following guidelines for taking a specimen:

- Normally the sural nerve is sampled. This biopsy specimen should be at least 2cm in length, providing sufficient tissue for frozen sectioning, paraffin wax processing for light microscopy, and electron microscopy.
  (However, in some cases, it may be preferable for the complete specimen to be processed into epoxy resin for examination by light and electron microscopy. Should this be so, the specimen must be immersed in 5% buffered glutaraldehyde solution immediately following resection. If necessary, this fixative can be supplied by the Neuropathology Department.)
- The specimen should not be tethered or pinned in any way.
- To prevent desiccation, the specimen(s) should be placed on a non-absorbent substrate and wrapped in cling-film for transport to the laboratory.
- Ensure that there is ***no specimen contact with any fluid***, for example fixative or saline solutions.
- Refer to the appropriate section below for instructions on sending the biopsy samples to the laboratory.

8.3. Nerve Biopsy Procedures Performed by Other Departments at Southmead Hospital

Please schedule the procedure early enough in the day to ensure the specimen arrives at the laboratory well before the end of the afternoon, allowing time for the specimen to be sampled and prepared immediately after its arrival.

Early on the day of the procedure, contact the laboratory to provide us with an expected delivery time for the specimen. This helps us manage the day's workload. Also, if a delay becomes unavoidable, please keep the laboratory staff informed.

Make arrangements for delivering the specimen to the Neuropathology Department, bearing in mind that the time elapsing between taking the biopsy and its delivery to the laboratory should be kept to a minimum. If you anticipate a delay in delivery in excess of 15 minutes, liase with a consultant neuropathologist or biomedical scientist.

Packaging and Transportation	If the biopsy can be delivered to the department within 15 minutes of removal, the specimen can be placed on a piece of dental wax in a Petri dish, or other shallow container with flat bottom. The specimen container must be clearly labelled and placed in a sealable specimen bag. Follow the notes above regarding transportation to the Neuropathology Department.
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the specimen bag (if this has not previously been sent to the department)
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. **Never leave the sample in Specimen Reception without speaking to a member of the Neuropathology team**. It is imperative that the sample is dealt with in the quickest possible manner.

8.4. Nerve Biopsy Procedures Performed at Other Hospitals

In order to provide a satisfactory diagnostic service for peripheral nerve biopsy specimens taken at locations away from Southmead Hospital, it is important that the following guidelines are followed:

- In addition to booking the procedure with the Neuropathology Department in advance, ensure that a pot of glutaraldehyde fixative will be available at the time of biopsy. We can provide this, together with appropriate packaging, but allow sufficient time for it to be sent. Placing part of the specimen in this fixative will provide us with tissue suitable for resin embedding for light and electron microscopy, and if considered appropriate, teased nerve preparations. The fixative formulation we use provides significantly better ultrastructural results compared with general purpose fixatives used in most cellular pathology departments.
- As this service is practicable only in cases for which there is no need to send an unfixed specimen to the Neuropathology Department, there is no urgency in delivering the specimen. If it is not possible for the specimen to be delivered personally, it can be sent, either by hospital transport, or by courier, or through the post following the appropriate Royal Mail guidelines regarding packaging and labelling.

Please notify the laboratory once the specimen has been despatched, to provide us with an expected delivery time.

Specimen Preparation	Ideally, the excised specimen should be at least 2cm in length. After excision, place it on a piece of dental wax *at room temperature*. The specimen should then be divided transversely (approx. 3:2 ratio) into two pieces.
Packaging and Transportation	Place the larger piece (at least 1cm long) into the glutaraldehyde fixative which *must be at room temperature*. The remaining piece of tissue should be immersed in formalin fixative for paraffin histology. The specimen pots must be clearly labelled and placed in a seal-able specimen bag. Refer to the notes above regarding delivery to the Neuropathology Department.
Accompanying Information	Completed green Neuropathology request form, as outlined in **'section 1.4'**, placed in the separate pocket of the specimen bag (if this has not previously been sent to the department)
Point of Delivery	Neuropathology Main Laboratory or Specimen Reception, Lime Walk Building. If delivered to Specimen Reception, ensure the Neuropathology Department is contacted by telephone. Neuropathology has a sample box located on the far right side of the counter in the Specimen Reception. This box is routinely checked throughout Neuropathology's hours of business so biopsy samples (**in fixative**) can be left in here. Alternatively, specimens from other hospitals can be sent to the Department by post or courier service provided they are appropriately and securely packed. In this case please notify the laboratory that you are sending the sample.

9. Autopsy Specimens

The Neuropathology Department provides an autopsy brain, spinal column and spinal cord examination service, not only for North Bristol NHS Trust, but also for other NHS Trusts, and Coroners.

To provide this service, it is essential that all specimens sent to us are clearly labelled, and are accompanied by an autopsy report and appropriate consent. Please refer to section 1.4 of this manual for more comprehensive information.

If the fixation time for the brain specimen is less than 3 weeks, this should be indicated so that further fixation of the specimen can be carried out in the Neuropathology Department before the specimen is dissected and examined by a neuropathologist.

Prior Notification	Is not required. Inform the department when sending/bringing specimens.
Specimen Preparation	Whole brain specimens should be fixed by suspension from the basilar artery in a 20% formalin solution for a minimum period of one week, but preferably a full three weeks, before being sent to us. Spinal cords should be fixed by immersion in formalin. Other tissue samples sent for examination should be immersed in formalin in clearly labelled specimen pots.
Packaging	The formalin should be drained off, and the brain packed in a polythene bag, which is then wrapped in cotton wool and sealed in a second polythene bag. The specimen(s) should then be placed in a plastic bucket. One or more plastic buckets can be packed together in an appropriately sized **UN3373** certified transport box together, with any pots containing other tissue samples for transportation to the Neuropathology Department. Use absorbent packaging around the specimen containers to ensure they are held firmly in place within the outer container. The box should be securely fastened and clearly marked as **Pathological Specimens**. See 'Biological agents: Managing the risks in laboratories and healthcare premises (Appendix 1.2)' published by the Heath and Safety Executive Advisory Committee on Dangerous Pathogens, and available in PDF format at www.hse.gov\publications, for detailed advice on transport of specimens.
Accompanying Information	The autopsy report and information concerning consent etc. (Please refer to **section 1.4** of this manual)
Point of Delivery	Neuropathology Main Laboratory, Lime Walk Building. The department should be pre-warned when to expect the specimen. Ensure that if sending by courier they are aware of the importance of delivering the specimen carefully and directly to the department. The specimen should **NEVER** be left elsewhere.

10. Complaints Procedure

The department has a full complaints procedure and complaints can be made either in person or via telephone, email or letter to the Laboratory Manager (or in his/her absence the most senior member of the team).

The timescales for dealing with complaints are as follows:

Response by the end of the next working day	This applies to verbal or written concerns that can be handled on the spot, or require a minimum of fact finding for resolution.
Response within 5-10 Working days	Verbal or written concerns that require input from other work areas, for example from other departments within the Trust.

Once a full root cause analysis has been done and corrective/preventative action taken then the complainant will be made aware of the actions taken.

11. Data Protection

All data and information in the Neuropathology Department is handled in accordance with the North Bristol Trusts' Data Protection Policy and the Data Protection Act 1998.